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Award Number: DAMD17-03-1-0109

TITLE: Telemedicine Based Ultrasound for Detecting Neonatal Heart Disease in Babies at Remote Military or Native American Health Care Facilities

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COL James Kinney, M.D.

CONTRACTING ORGANIZATION: Oregon Health and Science University
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REPORT DATE: March 2005

TYPE OF REPORT: Annual

PREPARED FOR: U.S. Army Medical Research and Materiel Command
Fort Detrick, Maryland 21702-5012

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 074-0188

1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE	3. REPORT TYPE AND DATES COVERED
	March 2005	Annual (15 Feb 04 - 14 Feb 05)

4. TITLE AND SUBTITLE
Telemedicine Based Ultrasound for Detecting Neonatal Heart Disease in Babies at Remote Military or Native American Health Care Facilities

5. FUNDING NUMBERS
DAMD17-03-1-0109

6. AUTHOR(S)
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8. PERFORMING ORGANIZATION REPORT NUMBER

9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)
U.S. Army Medical Research and Materiel Command
Fort Detrick, Maryland 21702-5012

10. SPONSORING / MONITORING AGENCY REPORT NUMBER

11. SUPPLEMENTARY NOTES

12a. DISTRIBUTION / AVAILABILITY STATEMENT
Approved for Public Release; Distribution Unlimited

12b. DISTRIBUTION CODE

13. ABSTRACT (Maximum 200 Words)

Our partnership of investigators from Madigan Army Medical Center at Fort Lewis, Washington, and Oregon Health Sciences University in Portland, will test the hypothesis that trained primary care practitioners or nurses can, with telemedicine supervision, perform cardiac ultrasound exams on neonates at risk for heart disease, and thereby impact time to diagnosis and outcomes. This study is targeted at Military Medical Facilities within Region 11, and Western Regional Medial Command. It will include two large Alaska Native Health Care Centers. Echocardiography has had major impact in the management of neonates suspected of having congenital heart disease. The expensive, specialized equipment and significant expertise to adequately perform and interpret these studies usually is present only in tertiary level medical centers with a pediatric cardiologist on staff. Initial results of a National Multicenter Neonatal Telemedicine Echo Outcomes Study, developed by the Principal Investigator, suggest that telemedicine-implemented diagnosis positively affects outcomes in infants suspected of having congenital heart disease. As an added impact of our program, we will develop expertise within caregivers who have previously not been able to perform these necessary exams, and will integrate the use of low-cost, yet high-performance hand-held ultrasound scanners, so as to provide the participating centers with new diagnostic health care capabilities.

14. SUBJECT TERMS	15. NUMBER OF PAGES
Echocardiography; Ultrasound; Telemedicine; Neonates; Congenital Heart Disease; Outcomes	18
	16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT
Unclassified	Unclassified	Unclassified	Unlimited

Table of Contents

Our DOD Neonatal Telemedicine Echocardiography program, managed by the investigators at Oregon Health & Science University and Madigan Army Medical Center, has been implementing the distribution and installation of SonoSite hand-held ultrasound devices, the completion of human subjects paperwork, the training of physicians from Washington and Alaska, and the installation of telecommunications infrastructure in order to implement the outcomes study of the impact of locally performed but remotely supervised congenital heart disease echocardiography in neonates.

Introduction

We have made significant headway now in training of our network physicians and installation of the echocardiographic equipment, and in solidification of the telecommunications infrastructure to activate the first four sites.

Progress this year, however, was substantially set back when LTC Robert Puntel, the Madigan Co-PI, was called to active duty in early December, 2004. COL James Kinney has assumed the role of Madigan Co-PI and, working with our new Administrator, Allegra Frank, they have helped position us to solidify the telecommunications infrastructure and start the Outcomes Study.

Progress Report

Final completion and certification of all individuals for participation is summarized below related to the human subjects approval process for all institutions to be activated in the initial tier of study sites.

A full update on the status of all Human Subjects protocols and our qualifications to run interact with each base.

Summary of Human Subject Protocol approval:

- 4 sites with full IRB approval: MAMC, WACH, BACH, Blanchfield
- 1 site with tentative IRB approval: ANMC
- 3 sites currently being reviewed by IRB: 3MDG, NHOH, NHB
- 1 site ready for submission to IRB: BJACH
- 1 site on hold: YKHC

Madigan Army Medical Center (MAMC), Ft. Lewis, WA

- Changes to staff over 2005. COL James Kinney replaced LTC Robert Puntel, deployed to Iraq, as Principal Investigator. Approved: 23 November 2004. Allegra Frank replaced Elizabeth Kinney as Project Coordinator. Approved: 26 October 2004.
- A change to the protocol and TeleEcho Training Consent Form was completed to allow compensation to non-active duty parents of consented subjects. We also added the Well Child Clinic at MAMC as an additional resource pool to recruit subjects for TeleEcho Training. Approved: 7 December 2004.
- Annual Continuing Review of Protocol. Approved: 23 February 2005.
- Drs Sahn, Puntel, & Kinney are privileged.
- MAMC has received the SonoSite and Polycom FX. We are still waiting to receive the external monitor and DVDR from Pacific Intermedia.
- MAMC will be ready to enroll subjects once connectivity to the NIPRNET is finalized; expected date: March 31, 2005.

Weed Army Community Hospital (WACH), Ft. Irwin, CA, and *Bassett Army Community Hospital* (BACH), Ft. Wainwright, AK –

- A separate protocol is unnecessary as they are under MAMC command and covered by MAMC IRB. BACH and WACH have our most currently approved consent form available for use.
- Drs Sahn, Puntel, & Kinney are privileged at both facilities.
- Weed has received the SonoSite and Polycom 512. They are still waiting to receive the external monitor and DVDR from Pacific Intermedia.
- Bassett has only received the SonoSite. They are still waiting to receive the Polycom 512, external monitor, and DVDR from Pacific Intermedia.
- WACH will be ready to enroll subjects once connectivity to the NIPRNET is finalized; expected date: March 31, 2005.
- BACH will be ready to enroll subjects once connectivity to the NIPRNET is finalized; the expected completion date is unknown at this time.

Alaska Native Medical Center (ANMC), Anchorage, AK

- I am in contact with the local PI, Dr. Engel. The protocol was given verbal approval during the December IRB. Written approval has not come forth at this time. They are working out the details for de-identifying the subject on their end. The IRB meeting for February was cancelled. Once Dr. Engel receives the approval letter he will forward it with the IRB minutes, consent form, CVs and NIH certifications to MAMC for HUC approval. If the ANMC approval letter is received by the end of March, it will go before the HUC in April. We will then submit a copy of the package to the HSRRB for approval.
- ANMC determined on 8/23/04 that with no touching or treating of patients or billing of services that the credentialing/privileging process does not need to occur.
- ANMC has only received the SonoSite. They are still waiting to receive the Polycom 512, external monitor, and DVDR from Pacific Intermedia.
- ANMC will be ready to enroll subjects once final IRB and HSRRB approval has been granted and the I-2 connection at the University of Alaska is completed; anticipated date: April – May 2005.

3rd Medical Group (3MDG), Elmendorf AFB, AK

- I learned some of my turnover information was incorrect. 3MDG does need to submit a site-specific protocol to their regional IRB at Travis AFB, CA. I prepared the protocol and documents for the local PI at Elmendorf. The protocol was scheduled for review during the February IRB meeting, but some rewrites were necessary and has now been moved to the March 7 IRB meeting. Additionally, Dr. Donald Lane, PI had a change of duty station unexpectedly and Dr. Nola McManus, AI is going to take his place. I have updated the protocol and supporting documentation accordingly. If they receive approval from Travis in March, I will forward all the documents to MAMC for HUC approval in April. We will then submit a copy of the package to the HSRRB for approval.
- Chief of Staff, COL Tappel is holding off on privileging Drs Sahn, Puntel, & Kinney until after the protocol completes the IRB review.
- 3MDG has only received the SonoSite. They are still waiting to receive the Polycom 512, external monitor, and DVDR from Pacific Intermedia.
- 3MDG will be ready to enroll subjects once final IRB and HSRRB approval has been granted, privileges granted for Drs Sahn, Puntel, and Kinney, and connectivity to the NIPRNET is finalized; anticipated date: May 2005.

Naval Hospital Bremerton (NHB), Bremerton, WA and *Oak Harbor Naval Hospital* (NHOH), Oak Harbor, WA

- Only one site-specific protocol needs to be submitted to the IRB at Naval Medical Center San Diego (NMCSD). The other site will be reviewed by submitting an abbreviated package to the IRB to request a satellite site (NHB) be added. This is similar to what we did for the WACH and BACH at MAMC. Since NHOH was further ahead in the process, we submitted their package to the IRB at NMCSD; CIP #S-04-101. Additionally, NHOH received Human Research Subject Protections from Navy Medicine Assurance for a different protocol and they are in the process of adding the TeleEcho Project to the approved list.
- Before the project can begin at these two facilities, a Memorandum of Understanding (MOU) is required. The MOU has been drafted at MAMC and is awaiting the necessary signatures. However, before the MOU is presented to the facilities, it was previously believed a Security Plan was needed. There was some miscommunication by those involved early in the process. In fact, a Security Plan should not be needed for the TeleEcho Project since it is strictly a video teleconferencing (VTC) system. Don New, Information Assurance/HIPAA Security Officer at MAMC has assisted in a "Determination of Status" to formally recognize the VTC nature of the project.
- We were recently informed by Lynda Reed, Department of Clinical Investigation at NMCSD, that the Navy requires we submit a separate budget for the Navy facilities and a 3-Party CRDA between NHOH, TRUE Research Foundation, and Oregon Health & Science University (OHSU). TRUE is currently working with NMCSD on this. If completed by mid March, the MOU, CRDA, and Budget will be submitted to Lynda Reed at NMCSD for the late March IRB meeting. I will then forward all the documents to MAMC for HUC approval in April. We will then submit a copy of the package to the HSRRB for approval.
- Drs Sahn, Puntel, & Kinney are privileged at both facilities.
- Bremerton has received the SonoSite and Polycom 512. They are still waiting to receive the external monitor and DVDR from Pacific Intermedia.
- Oak Harbor has received the SonoSite and Polycom 512. They are still waiting to receive the external monitor and DVDR from Pacific Intermedia.
- Oak Harbor is ready to enroll subjects once final IRB and HSRRB approval has been granted; anticipated date: May 2005.
- Bremerton will be ready to enroll subjects once final IRB and HSRRB approval has been granted and connectivity to the NIPRNET is finalized; anticipated date: May 2005.

Blanchfield Army Community Hospital, Ft. Campbell, KY

- We verified the protocol was approved in June 2004 at Eisenhower Army Medical Center's (EAMC) IRB. Phyllis Fergusen, Department of Clinical Investigation at EAMC, faxed the approval letter to my office. The final Waiver of Authorization and the Data Use Agreement has been completed and submitted to Nancy King, HIPAA Compliance Specialist at Blanchfield and the IRB at EAMC. I submitted the package to MAMC for HUC approval. It is scheduled for the March IRB meeting. Once approved, we will then submit a copy of the package to the HSRRB for approval.
- The original PI, Dr. Robert Moore, is no longer at Blanchfield ACH. Nancy King and I are working with the Deputy Commander of Clinical Services for a replacement PI.

Bayne-Jones Army Community Hospital (BJACH), Ft. Polk, LA

- We found an email stream with the prior command's support of the study. Though, since initial contact there has been a change in personnel and the new command structure was unaware of the study. I received support from COL Steven Swann, CO at BJACH, and MAJ Rob Crowe, MD, Chief of Pediatrics, will be the local PI. I have collected the necessary

documents from the DCI at Brooke Army Medical Center (BAMC) for a Database/Chart Review Protocol. I finished putting the package together for Dr. Crowe and emailed directions explaining what he must do to complete the package. He is TDY at this time though we are hoping to make the suspense for the 6 April BAMC IRB meeting. Once approved, I will forward all the documents to MAMC for HUC approval and then submit a copy of the package to the HSRRB for approval.

Yukon-Kuskokwin Health Corporation (YKHC), Bethel, AK

- This facility is holding off on participating in the study due to staff constraints.

When a new staff person joins the Department of Pediatrics this summer, we expect the he site will be activated.

Separate certifications for supervising patient studies were required for Drs. Puntel, Kinney and Sahn; some of which could be done with one application and others had to be done separately.

A number of individuals have completed their two-day training, which concluded a curriculum of lecture instruction, computerized study material and hands-on teaching in the nursery at Madigan Army Medical Center, also performed under an IRB.

An update on who was trained - how many days and the dates of training:

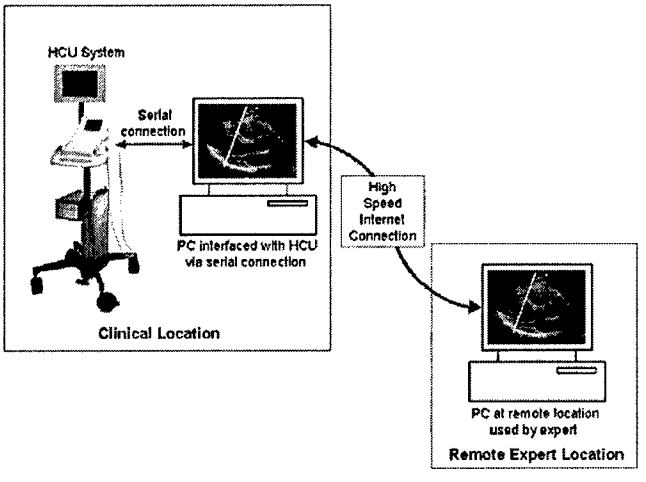
Summary March 2004 – 2005:

- 9 TeleEcho Training Seminars
- 18 days of training
- 15 Physicians trained to perform supervised echocardiograms
- CME Credits Offered: 56
- CME Credits Assigned: 42

- 14 category 1 CME credits are now being offered for the TeleEcho Training Seminar held September 29, 2004 - September 30, 2005.

The institutional individuals trained and their dates of training are shown in the table below:

March 24 – March 25, 2004	LCDR Andrea Donalty, MD, NHOH
March 29 – March 31, 2004	CPT Athena Stoyas, MD, WACH
April 10 – April12, 2004	Dr. Michael Engel, ANMC
	Dr. Calle Gonzales, ANMC
	Dr. Haitham Salman, ANMC
April 17 – April 19, 2004	CDR Karie Andersen, MD, NHB
	LCDR Rose Dieffenbach, MD, NHB
September 29 – September 30, 2004	CPT Robert Warner, MD, WACH
December 9 – December 10, 2004	MAJ Donald Lane, MD, 3MDG
	COL David Estroff, MD, MAMC
	CPT Katy Gibson, MD, MAMC (Resident)
December 14 – December 15, 2004	CDR Victoria Crescenzi, MD, NHB
	CPT Katy Gibson, MD, MAMC (Resident)
January 11 – January 12, 2005	MAJ Nola McManus, MD, 3MDG
March 14 – March 15, 2005 ***Scheduled***	LCDR Christopher Westbrook, MD, NHB
	CDR Ronald Dommermuth, MD, NHB



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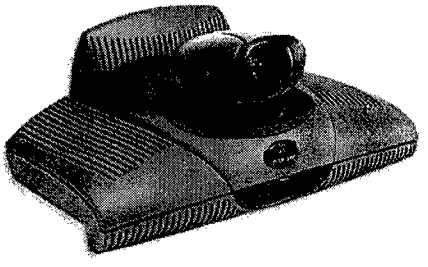


Communications Infrastructure

The infrastructure report included in last years summary led to attempts for contracting this infrastructure using commercial lines and as of last year, we decided to go to commercial bids for this installation.

The monthly pricing costs for this installation still appear to be excessive, even given the fact that Yukon would be on a separate intra-Alaska network switched through the Alaska Federation of Healthcare Network. Given that ongoing problem, including the high monthly cost for Madigan, which would cost almost $8,000 per year, we have gone back to the prior discussion of the network. There has however, recently been a breakthrough wherein meetings with chief information officer at Naval Oak Harbor tested the use of their telemedicine equipment through NIPRNET. A DITSCAP was not necessary when running a VTC enterprise on the NIPRNET and having set up a demonstration in January of this connectivity, we have been assured it is a viable opportunity for Reed Army Medical Center as well. Thus, we're moving ahead directly with these centers now ready to start data entry who will be using commercial lines for the Alaska portion of the network.

A meeting with Lt. Col. Anderson, Madigan Army Information Management Officer, along with Don New, the HIPAA Security and Information Assurance Officer, suggests now that they will accept the use of NIPRNET without requiring it to go through a DITSCAP.

An update of the infrastructure plans- to bring up Oak, Irwin, Whidbey, and Bremerton and MAMC on NIPRNET and ANMC, Elmendorf, and Ft Wainwright- on GCI bandwidth.

Summary of Infrastructure Plans:

In December 2004 we what we had believed when we wrote the grant was an existing infrastructure within the Military Treatment Facilities (MTF), NIPRNET (Non-Secret IP Router Network). A major benefit to utilizing the NIPRNET is sustainability. We would be able to establish point-to-point connections for all military remote sites in the study to MAMC/OHSU at no additional cost to the grant. Whereas establishing a commercial network between the 6 MTFs would have cost the grant in excess of $225,000 over the 40 month data collection period for the study. Utilization of the NIPRNET would also offer a more robust platform for the TeleEcho Project, including higher bandwidth than we could afford, additional security, and increased reliability. Finally, if research from the TeleEcho Project leads to a new standard of care within the DoD for telediagnosis of newborns at remote facilities; then connection to the NIPRNET for each MTF is ideal due to the sustainability of the project once the research study and funds has ended.

Going on the information provided by Dan Wolniakowski, The Chief Information Officer at Naval Hospital Oak Harbor; the Regional Manager, Ron Oaks, said DITSCAP (DoD Information Technology Security Certification and Accreditation Process) was not necessary when running a VTC (video teleconference) enterprise on the NIPRNET. There is some disagreement to this information from within the Information Management Department at each facility. We have to work with each department as ultimately they determine whether or not to let us on their networks. Madigan's final "Determination of Status" of the TeleEcho Project as a VTC system, not an Information System, helps simplify DITSCAP approval. The estimated timeline from start to finish for an abbreviated DITSCAP is three weeks. The Army and Navy MTFs have agreed an abbreviated DITSCAP will meet their needs as well and ensure NIPRNET connection at their facilities.

Madigan Army Medical Center (MAMC), Ft. Lewis, WA

- As of March 4, 2005, a determination has been made that a DITSCAP, although abbreviated, will be required for the PEDS TeleEcho Project prior to connection to the MAMC network using IP protocol. The determination was made on the fact that NETCOM requires all devices connected to an Army network be certified and network approved prior to connection. With assistance from Don New, Information Assurance/HIPAA Security Officer at MAMC, I will author the document required for the abbreviated DITSCAP. The document will provide a detailed outline and description of the components in an easy to read format. Once completed the document will be forwarded to the DAA, Chief of Staff - COL Martin, for final in-house approval. This process should take approximately 3 weeks and the TeleEcho System is expected to be connected to the NIPRNET by the end of March 2005.

Weed Army Community Hospital (WACH), Ft. Irwin, CA

- I spoke with Dennis Clark, Network Specialist at WACH on March 7, 2005. An abbreviated DITSCAP will also be completed for WACH concurrently with MAMC's. Once completed the document will be forwarded to the DAA, WACH CO - COL Eskew, for final in-house

approval. This process should take approximately 3 weeks and the TeleEcho System is expected to be connected to the NIPRNET by the end of March 2005.

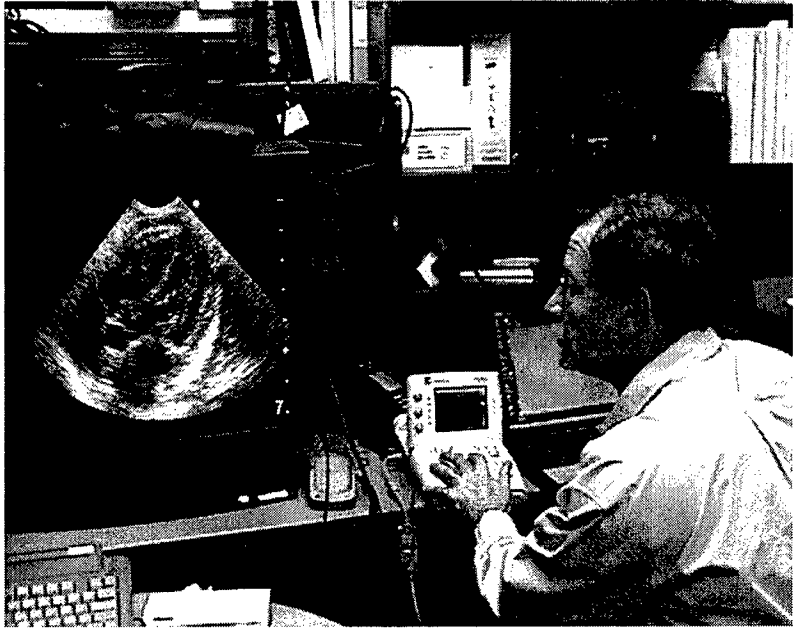
Bassett Army Community Hospital (BACH), Ft. Wainwright, AK

- We are in the process of confirming if BACH will accept an abbreviated DITSCAP in order to establish an IP connection to the NIPRNET. At this time, there is still resistance in establishing an IP connection to their network. They seem to be more open to an ISDN connection utilizing the MEDNET. Though this creates other problems since the rest of the sites have been standardized to IP. It is hoped that once MAMC receives approval to connect to the NIPRNET, BACH will follow.
- As of March 8, 2005, Bob Shankle, Chief Information Management Department at Bassett will require a System Security Authorization Agreement (SSAA) which, if adequately documented, will result in an Interim Authority to Operate (IATO) the TeleEcho system on the network. I am in the process of verifying what this process exactly entails. I assume this process should take approximately 6 weeks and the TeleEcho System should connect to the NIPRNET by April-May.

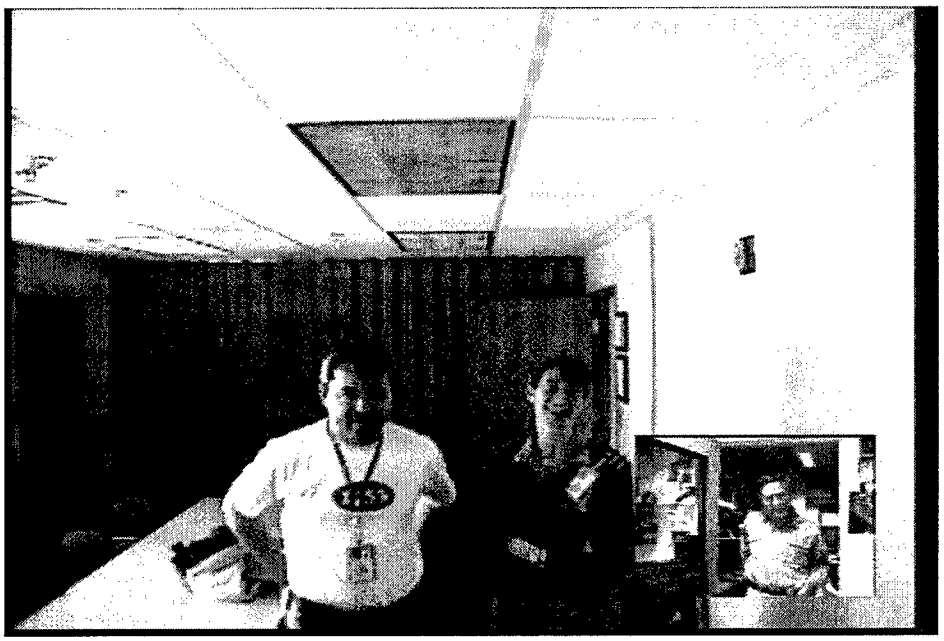
Oak Harbor Naval Hospital (NHOH), Oak Harbor, WA

- This was our first site to establish connectivity for their Polycom, on 14 December 2004. The connection was tested by successfully calling Pacific Intermedia. Dan Wolniakowski, The Chief Information Officer at Naval Hospital Oak Harbor was the initial driving force in allowing the connection of the TeleEcho equipment using the NIPRNET. As a result of connecting the equipment via the NIPRNET, the business line previously installed for the Polycom was no longer necessary and service cancelled as of 17 December 2004. Though in order to communicate with non-DoD facilities, an abbreviated DITSCAP will be required and completed for NHOH concurrently with MAMC's. Once completed the document will be forwarded to their DAA for final in-house approval. This process should take approximately 3 weeks.

The Oak Harbor- communications link was tested over NIPRNET on Friday March 11 for a simulated examination. Video quality was excellent.



IP address and host names __199.10.192.11___NHOH-TCP Port(s): __1718-1720____DP Port(s):
March 11, 2005 14:42 hrs



Naval Hospital Bremerton (NHB), Bremerton, WA

- Bremerton confirmed connection to the NIPRNET on 28 February 2005. I spoke with Dennis Clark, Network Specialist at WACH on March 7, 2005. In order to communicate with non-DoD facilities an abbreviated DITSCAP will be required and completed for WACH concurrently with MAMC's. Once completed the document will be forwarded to their DAA for final in-house approval. This process should take approximately 3 weeks.

3rd Medical Group (3MDG), Elmendorf AFB, AK

- While it will be possible for 3MDG to connect the TeleEcho Equipment to the NIPRNET, the process will take more time than for the Navy and Army facilities. Conrad Dale at PACAF (Pacific Air Force) outlined the process. An abbreviated DITSCAP will be completed for 3MDG concurrently with MAMC's. An advanced copy of the abbreviated DITSCAP for 3MDG will be will be sent to Mr. Dale and a copy will be submitted to Robert Pickney at Headquarters USAF Communications and Information in order to begin the CoN (Certificate of Networthiness). Once the CoN is granted, it will then be forwarded back to Mr. Dale along with the abbreviated DITSCAP and a ports and protocols matrix. Mr. Dale will then submit a RtO (Request to Operate). Once the RtO is approved, a CtO (Certificate to Operate) will be issued to 3MDG and a connection can be established to the NIPRNET. Mr. Dale expects to have the CtO within two weeks after the CoN has been issued and the RtO, 5 days after that. The total process will take approximately 1.5 – 2 months to complete. On a side note, there is much resistance to the use of a commercial communications company at this time.

Alaska Native Medical Center (ANMC), Anchorage, AK

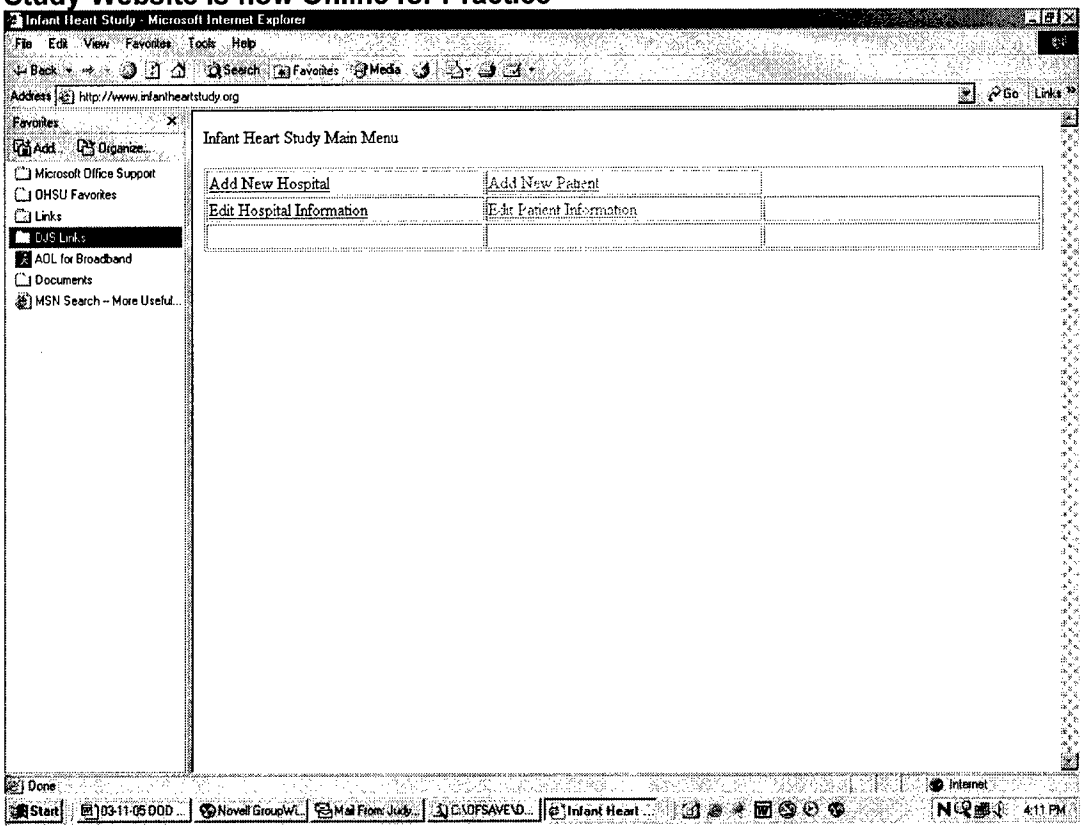
- Internet-2 (I-2) is on schedule for March at the University of Alaska in Anchorage. Equipment is already being delivered and technicians have been scheduled to begin installation. Since OHSU also has I-2 capability, the calls can easily be placed from ANMC to OHSU. Since MAMC does not have I-2 capability, it could become a tributary. Michael Clark believes I-2

calls from ANMC could be successfully backhauled to MAMC from University of Washington in Seattle or OHSU in Portland.

Yukon-Kuskokwin Health Corporation (YKHC), Bethel, AK

- This facility is holding off on participating in the study due to staff constraints.

Study Website is now Online for Practice



The website is now online and selected individuals who are fully trained and ready to start the study have been looking at the data forms on a practice basis.

It can be accessed at http://www.infantheartstudy.org

The open temporary entry passwords for review of the data entry forms or practice with them is Username:visitor, Password:Jupiter.

Key Research Accomplishments

Training has been provided for fourteen individuals who are now ready under supervision to perform echocardiographic diagnosis. Two more individuals will be trained next week. One non-supervised echo performed by Dr. Ron Wells in Fairbanks, a Pediatrician with an interest in Cardiology who has interviewed and been accepted for Training in Pediatric Cardiology as a Military supported Fellow at OHSU beginning next summer – used the SonoSite system on which he had received partial training by me when he interviewed at OHSU last year. Dr. Wells used the SonoSite system he had in Fairbanks to correctly diagnose a truncus arteriosus type 2 abnormality. He described his findings by phone to Col Kinney, and the baby

was referred and transported to University of Washington, Seattle Children's Hospital, where surgery was performed successfully. This is out of protocol for the study- but represents an event which we are proud of because an efficient and excellent outcome occurred even before the Telecommunications infrastructure had been installed at WACH.

Reportable Outcomes

See above.

New Scanners to be distributed Mid-Summer:

We have completed negotiations with SonoSite who will fulfill their obligation to replace the SonoHeart Plus systems with their new Digital system the Titan- and adapt the remote control program written for this project to run on the new system. The Titan has better color Doppler quality and the curved array transducer runs at between 8.5 and 11MHZ. Minimal instruction will be required for our remote sites to learn how to use the system. The control philosophy is very similar but the control interface is larger and easier to use.

Conclusions

The departure of Elizabeth Kinney and her replacement by Allegra Frank allowed smooth transitioning of the knowledge base. Allegra has had an aggressive approach to finalizing paperwork for human subjects certification and has worked hard, along with Dr. Sahn, to push the access to NIPRNET that we expected we would have when we first wrote this grant. Significant breakthroughs have occurred in that area.

COL James Kinney has filled in as Madigan P.I., but we are still set back by the absence of LTC Rob Puntel who is now on active duty in support of our military forces in Iraq.

APPENDIX A

Update Subject - 13

Section A. Transmission Data

Date of echocardiogram 07/01/1999			
	days	hours	minutes
Time from first phone call to echo interpretation days:		2	31
Transmission time (minutes)	31		
To change select correct button	Type:	Emergent ○	Elective ◉

If elapsed time is greater than or equal to 3 hours please explain:

Referring site:	evanston hospital	Referring Physician:	michael caplan, md		
Tertiary care site:	childil	Distance from referring site (in miles)	13	Distance from referring site(in minutes)	45

Section B. Patient Demographics

DOB	06/29/1999	Time of Birth	6:48				
Ht (cm)	43.0	Weight (kg)	2.6	or Ht (inches)		Weight (ounces)	
	Gender	M ☐	F ☒	Gestational age (weeks)	39		
Ventilated ☐		Not ventilated ☒		Referred by fetal echocardiogram	Yes ☐ No ☒		

Section C. Diagnosis and transfer

Pre transmission diagnosis (reason for echo)
(select one only)

R/o congenital heart disease

Non Cardiac Diagnosis
You may select more than one by holding the control (Ctrl) key and clicking with the mouse pointer

You selected the following:

CNS
GI
GU
Multiple congenital anomalies
Musculo Skeletal
Respiratory

If you selected a non cardiac diagnosis please indicate if it is significant or minor

Diagnosis	Significant	Minor	None	Diagnosis	Significant	Minor	None
CNS	☐	☐	☐	GI	☐	☐	☐
GU value selected	☐	☐	☐	Multiple congenital anomalies value selected	☐	☐	☐
Musculoskeletal value selected	☐	☐	☐	Respiratory value selected	☐	☐	☐
Syndrome value selected	☐	☐	☐				

Post transmission diagnosis (based on transmitted image only)
Primary (select one only)

Ventricular septal defect - muscular

Secondary (may select more than one)

You selected the following: Atrial septal defect - patent foramem ovale,Patent ductus arteriosus,Pulmonary artery - pulmonary hypertension

Anomalous left coronary artery
Anomalous pulmonary venous return - partial
Anomalous pulmonary venous return - total cardiac
Anomalous pulmonary venous return - total infradiaphragmatic
Anomalous pulmonary venous return - total supracardiac
Aortic arch anomalies - coarctation of the aorta

Final diagnosis (after original videotape reviewed; note any differences from transmitted study)

Primary (select one only)

Ventricular septal defect - muscular

Secondary (may select more than one)

You selected the following: Atrial septal defect - patent foramem ovale,Patent ductus arteriosus,Pulmonary artery - pulmonary hypertension

Anomalous left coronary artery
Anomalous pulmonary venous return - partial
Anomalous pulmonary venous return - total cardiac
Anomalous pulmonary venous return - total infradiaphragmatic
Anomalous pulmonary venous return - total supracardiac
Aortic arch anomalies - coarctation of the aorta

If patient transferred, final diagnosis at referral site after repeat echo or additional testing (e.g. catheterization)

Primary (select one only)

Secondary (may select more than one)

You selected the following:

Anomalous left coronary artery
Anomalous pulmonary venous return - partial
Anomalous pulmonary venous return - total cardiac
Anomalous pulmonary venous return - total infradiaphragmatic
Anomalous pulmonary venous return - total supracardiac
Aortic arch anomalies - coarctation of the aorta

Recommended follow-up after transmission

You selected the following:

Patient transferred ☐ Recommended inpt f/u ☒ Outpt f/u ☐ No further f/u ☐

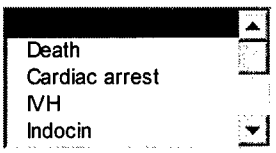
Section D. Transmission issues

You selected the following:

Audio	☐	Video	☐		
Telecommunication lines	☐	Could not transmit	☐	Other	☐

Section E. Medical Outcomes

Medical outcomes



Please take a moment to review your input before submitting. Thank you. At this point you may want to print this page for your files.

Update Subject

Edit Page